

# Drag-Racing Cups



Taken in part from <https://www.stevespanglerscience.com/lab/experiments/drag-racing-coffee-cups/>

**\*\*If you want to decorate your cups, do that before beginning these steps\*\***

1. On the bottom of both cups, trace the edge of a quarter with a pen or pencil. Try to keep the traced circle as centered on the bottom of the cups as possible.
2. Cut the traced circles out of the bottom of both cups using a pair of scissors or exacto-blade.
3. Tape the cups together, bottom to bottom, using a strip of strong tape. The holes in the bottom should line up.
4. Link 2 rubber bands together to make a chain that is close to the combined length of the cups. To link the rubber bands, lay two down with the ends overlapping. Then, pull the overlapped portion of the top rubber band around the bottom rubber band and up through the center hole. Pull them tight and the rubber bands should link together.
5. Run your rubber band chain through the middle of the cups.
6. Push one end of the rubber band chain through the hole in one disposable lid. Attach a paper clip to hold the rubber band in place and push the lid onto the cup.
7. Push the opposite end of your rubber band chain through the hole in the other lid and attach it to the cup using this method--Thread the rubber band through the middle of the bead. Put the straw through the end of the rubber band, just past the bead. Slide the straw through so that the rubber band is about 2 cm from one end of the straw.
8. Wind your racer by holding the cups in place and repeatedly spinning the straw around the bead.
9. Set the racer down and watch it go!

Try testing different cup sizes. Which size rolls fastest? Which size rolls the farthest?

## The Science

When you twist the rubber band chain with the straw, you stretch the rubber band and wind it up. This winding and stretching creates and stores potential energy.

Potential energy is energy that has the ability to do work in the future, but is not currently performing any work. The more twisting you apply to the rubber band, the more potential energy you create.

When you put the Drag Racing Cups down on a surface, the rubber band unwinds and converts the potential energy into kinetic energy, the energy of a moving object, as it makes the cups roll.



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